## REMARKS

Reconsideration of the Application is respectfully requested.

## I. Claim Status

Claims 1-11 are currently pending and stand rejected.

Claim 2 has been canceled herein. Thus, upon entry of this amendment, claims 1 and 3-11 are pending.

Claim 1 has been amended to incorporate the subject matter of now-canceled claim 2, i.e., to specify that the claimed continuous transparent conductive films is made of an aggregate of columnar single crystals. Support for this amendment can be found in original claim 2. Thus, no new matter is introduced by this amendment.

Claims 3-5, 7, and 9-11 have been amended to remove dependency from now-canceled claim 2. No new matter is introduced with these amendments.

## II. Claim Rejections

### 1. Rejection over Mukherjee

Claims 1 and 3 -11 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Mukherjee (U.S. 4,959,257) in view of the Examiner's statement of ordinary skill in the art.

The Examiner contends that Mukherjee teaches transparencies comprising a transparent substrate (such as glass) having a conductive film formed thereon. The Examiner states that the conductive film may comprise indium tin oxide and that the indium tin oxide film may have a thickness of 10 to 200 nm. The Examiner states that it would have been obvious to one having ordinary skill in the art to select a thickness within the presently claimed range based on Mukherjee. The Examiner considers the roughness cited in claims 3 and 4 and the optical properties recited in claims 9-11 as inherent in Mukherjee. Finally, the Examiner states that since claims 7 and 8 merely

recite a process where the product is not materially different than the product in Mukherjee, the process limitations are therefore not seen to distinguish the claimed article.

In response, without conceding the validity of the Examiner's rejection, the Applicant has amended claim 1 to incorporate the subject matter of claim 2, i.e., to specify that the continuous transparent conductive film is made of an aggregate of columnar single crystals. As a result, the claimed light transmitting substrate has excellent etching properties not seen in other light transmitting substrates. Mukherjee does not teach or suggest continuous transparent conductive films made of an aggregate of columnar single crystals. Indeed, the Applicant notes that this is tacitly admitted by the Examiner, because now-canceled claim 2, which recites the limitation specifying a continuous transparent conductive film made of an aggregate of columnar single crystals , is not rejected over Mukherjee. Thus, claim 1 as amended is not obvious over Mukherjee. Moreover, claims 3-11 depend from claim 1. A dependent claim includes all the limitations of the claim from which it depends (and further limits the claim). Thus, because claim 1 is not obvious over Mukherjee dependent claims 3-11 are not obvious over Mukherjee, either. Accordingly, claims 1 and 3-11 are not obvious over Mukherjee, and the Applicant respectfully requests withdrawal of this rejection.

**2. Rejection over Suzuki**

Claims 1-11 are rejected under 35 U.S.C § 103(a) as being unpatentable over Suzuki (U.S. 7,309,531) in view of the Examiner's statement of ordinary skill in the art.

The Examiner contends that Suzuki teaches articles comprising a light transmitting substrate having a conductive film formed thereon. The Examiner states that the conductive film may comprise indium tin oxide and have a thickness of 10 to 500 nm. The Examiner states that it would have been obvious to one having ordinary skill in the art to select a thickness within the presently claimed ranged based on Suzuki. Furthermore, the Examiner contends that Suzuki teaches that the indium tin oxide film may comprise an aggregate of columnar single crystals as in claims 2, 5, and 6 of the present invention. The Examiner states that Suzuki teaches the maximum and average

roughness, which overlap those presently claimed, and that it would have been obvious to one having ordinary skill in the art because Suzuki suggests the values. The Examiner considers the optical properties recited in claims 9-11 as inherent in Suzuki. Finally, the Examiner states that since claims 7 and 8 merely recite a process where the product is not materially different than the product in Suzuki, the process limitations are therefore not seen to distinguish the claimed article.

Applicant respectfully traverses the rejection.

In Applicant's response dated December 2, 2008, the Applicant argued that Suzuki teaches away from a continuous transparent conductive film having a thickness of 2 to 9 nm. The Examiner disagrees, stating that Suzuki teaches that the thickness of the conductive film is "**preferably** 10 to 500 nm," and, according to the Examiner, this disclosure is merely "illustrative and not limiting" and that by "disclosing the range as 'preferable' Suzuki clearly envisages thicknesses outside the disclosed range (*see* current Office Action at p. 3). The Applicant respectfully but strenuously disagrees, and wonders why the Examiner has not considered the entirety of the teachings of Suzuki in forming his rebuttal argument. As noted by the Examiner, Suzuki, at col. 10, lines 50-54, teaches that "the thickness of the conductive film for use in the electrode ... is in a range of preferably 10 to 500 nm, further preferably 20 to 200 nm." However, the Examiner has failed to acknowledge the disclosure that follows this passage: "[m]oreover, an upper limit is not especially limited. However, when the film is excessively thick, a fear of peeling or the like occurs. **When the film is excessively thin, there is a problem in film strength or a hole transport capability at a manufacturing time**." (*See* Suzuki, col. 10, lines 54-58; emphasis added). Thus, Suzuki teaches that the upper limit is not especially limiting but, by not making the same statement about the lower limit, Suzuki acknowledges that the lower limit is indeed limiting. Clearly, Suzuki does not envisage thicknesses below the disclosed range, i.e., less than 10 nm, as recited in instant claim 1. In this respect, Suzuki teaches that there are problems associated with continuous transparent conductive films that are less than 10 nm thick. Put another way, according to the Suzuki teaching, the instantly claimed continuous transparent conductive film (that is 2-9 nm thick) would be excessively thin (or, to use the language employed in the instant specification, "ultrathin" (see below)), and thus have problems

such as poor film strength and/or poor hole transport capability. Applicants are confused by the Examiner's statements and respectfully request the Examiner to explain how one of ordinary skill in the art at the relevant time (i.e., the time of filing of the instant patent application) who, upon becoming aware of the Suzuki teaching that there are problems associated with using conductive films that are excessively thin, i.e., less than 10 nm thick, would be motivated to do just that. In fact, one of ordinary skill in the art at the relevant time would clearly be motivated to follow the teachings of Suzuki and employ continuous transparent conductive films that are **more** than 10 nm thick. In summary, simply put, one of ordinary skill in the art would not review a reference that teaches "**don't do this**" and be motivated to go ahead and do it – this is the entire crux of a "teach away". Applicants were the first to realize that one could take advantage of the increased light transmittance that results from the use of excessively thin transparent conductive films, without encountering the problems alluded to in Suzuki (*see* instant application as published (US 2006/0285213( at p. 2, paragraph [0028] (which recites "[i]n case of increasing the light transmittance, the thinner the transparent conductive film, the better.")). Moreover, the Applicant respectfully points the Examiner to the 2006/0285213 publication, at paragraph [0002], where it is noted that "[i]t has been considered that, when the conductive film of the light transmitting substrate with a transparent conductive film is an **ultrathin** film at the nm level, a continuous film is not formed." Applicant thus noted within the specification that a prevalent thought in the scientific community at the time was that an ultrathin film at the nm level could not form a continuous film. Therefore, it would not have been obvious to one skilled in the art to create an ultrathin continuous film at the nm level, because it was thought that it could not be done. Applicant succeeded in the formation of an ultrathin continuous film at the nm level as a conductive film of light transmitting substrate with a transparent conductive film, thereby overcoming the previous problem in the field.

Thus, as taught by the instant specification and by the very reference that the Examiner is citing against the pending claims, i.e., Suzuki, it is clearly not obvious to use transparent conductive films that are 2-9 nm thick. Accordingly, for at least these reasons, claim 1 is not obvious over Suzuki. In addition, for the same reasons as those provided above with respect to Mukherjee,

claims 3-11 are not obvious over Suzuki, either. Accordingly, claims 1 and 3-11 are not obvious over Suzuki, and the Applicant respectfully requests withdrawal of this rejection.

## III. Conclusion

This application is believed to be in condition for allowance, which is earnestly solicited. If the Examiner believes there are further issues that could be advanced by an interview or entry of an Examiner's Amendment, the Examiner is invited to contact the undersigned attorney.

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Respectfully submitted,

By _____

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